REGIONE BASILICATA

Overview of the involvement of local Research Organisations, Enterprises, Universities in national and international projects on Earth Observation applications and services.

(Earth Observation, Satellite Navigation and Telecommunication)

Advanced Computer Systems – ACS SpA

ORGANISATION PROFILE AND EXPERIENCE

Section 1 - Contact details

Organisation Name (full name)	Advanced Computer Systems – ACS SpA
Organisation acronym (Abbreviation)	ACS
Address	Via della Tecnica, 1
Postal code	75100
City	Matera
Region	Basilicata
Country	Italy
www address	www.acsys.it

Contact person:	
Title	Dr.
First Name	Francesco
Family Name	Carriero
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Skype	
E-mail	f.carriero@acsys.it

Section 2 – Type of organisation

If you are an Enterprise

Enterprise type	☒ Private ☐ Non profit ☐ Public ☐ Other	**Is your Company a Small-Medium sized Enterprise (SME)?**	☒ YES ☐ NO
		if YES, Number of Employees	☐ < 10 ☐ > 10 and < 50 ☒ < 250

According to Article 2 of the annex of Commission Recommendation 2003/361/EC of 6 May 2003, which applies from 01 January 2005, an SME (Micro, Small or Medium-sized Enterprise) is an enterprise which:

- has fewer than 250 employees,
- has an annual turnover not exceeding 50 million euro, and/or
- an annual balance-sheet total not exceeding 43 million euro.

Owned by a non SME:	☐ YES ☒ NO

Description of the organisation (max 1.000 characters):

ACS is a Private limited company located in Rome (headquarters) and Matera (research centre), specialized in the development of turn key ground segments for satellite data acquisition, processing and dissemination as its core business.
Second to none in developing tools for digital image analysis and processing, ACS has realised various scientific and/or commercial applications based on EO data exploitation.
ACS products follow the quality assurance standards compliant to either ISO Vision 2000 or European standards for space activities - ECSS. The balance sheet is audited and certified by Mazars & Guerard S.p.A.

Staff information

ACS staff is composed of more than hundred employees. Their background is mainly in informatics technology and natural sciences, with further specialisation in remote sensing or systems engineering. They are organised in two Application Areas: Space and Environment.

If you are a Research Organisation

Research Organisation type	Research Organisation (☐ Private ☐ Public) High Education School / University / Institute (☐ Private ☐ Public) ☐ Other, please specify:
Description of the organisation (max 1.000 characters): **Staff information**	

Section 3 - Description of your main expertise and activities in the field of ICT

Areas of expertise (max 2.000 characters)	**SPACE APPLICATIONS** The ACS know-how in the satellite data manipulation is implemented through the proprietary Multi-Mission Data Processing System (MDPS). A benchmark in both national and international remote sensing markets, this modular, cost-effective and reliable multi-mission system permits to receive and process images from different satellites by using the very same infrastructure. ENVIRONMENTAL APPLICATIONS ACS has developed different services to retrieve and exploit the information from remote sensing data. These allow to study natural phenomena such as desertification and man made phenomena as for example sea pollution. They are used to enhance research activities in volcanology, vegetation mapping or more widely, soil sciences. ACS realises Digital cartography, applied either in urban planning or in territory management and decision making applications. **OTHER SECTORS** ACS studies and provides advanced technologies for environmental, meteorological and biomedical images acquisition, treatment and exploitation. These technologies form the basis of ACS core solutions: be it a turn-key ground segment, an application or a service. The comprehension of phenomena observed and information gathered is supported by ACS ad hoc realised virtual reality instruments. For the treatment of retina pathologies, the company has developed **a patent protected software system** to support the retina laser surgery. Based on a real time acquisition and treatment of images showing the bottom of a patient's eye it controls the laser beam in a precise and fast manner…as only the technology can. ACS proposed several innovative scientific and commercial applications - **search engines-** in the field of knowledge Driven Information Mining in the **large digital image archives**. The user can select an image or its fragment and search within the archive for the images containing the same fragment or a similar one. ACS has been working in the **Virtual reality** market for almost 10 years. The company developed several applications for a 3D visualisation of satellite images. Virtual reality is an important instrument for the immersive visualisation of both past and future events: hence the applications developed for Italian Ministry of Cultural Assets and for architectonic and urban planning. The same technology is used by television to create virtual scenographies and backgrounds. ACS has developed some for several RAI – Italian Radio

	Television– programmes. ACS Research Centre in Matera explores new opportunities and conducts experiments with new cutting edge technologies frequently used in ACS systems and services.
Keywords describing the activities performed by the organisation (if needed more than one)	1. **Space Systems and Ground Segments** 2. **Earth Observation** 3. **Environment** 4. **Tele-medicine** 5. **Image-driven sensor and process control**

Section 4 – List of Projects implemented in the last 5 years

Project	**Centro Nazionale Multimissione**
Title	**Centro Nazionale Multimissione**
Project Acronym	**CNM**
Source of funding / Programme	Italian Space Agency (ASI)
Status	In progress
Role of the organisation	Prime contractor
Responsible	Francesco Carriero
Duration	From March, 2008 to March, 2011
Content	Design, Implementation, Integration, Validation and Pre-operations of the National Multi Mission Earth Observation Centre. The CNM is able to receive 7 different EO Satellites through its multimission Antenna System, process data, archive and distribute them, and support end user through a web catalog and help desk. Catalog browsing and navigation is supported by advanced Data Mining based technologies.
Website	http://cnm-hde.asi.it/

Project	**RIADE**
Title	Integrated Research for the Application of technologies and innovative processes to fight Desertificatio**n**
Project Acronym	**RIADE**
Source of funding / Programme	Italian Ministry of Research
Status	Completed
Role of the organisation	Coordinator
Responsible	Francesco Carriero
Duration	From Jan 2002 to Dec 2004
Content	Short description of the project (max 1000 characters) The research was based on the collaboration between the Advanced Computer Systems A.C.S. S.p.A., ENEA and the Nucleus for Research of Desertification (NRD) of the University of Sassari. The project: developed innovative techniques for variables determination and processing of climatic, environmental and anthropic data; studied cause-effect relations of the most important processes behind desertification; defined interpretative models to use for the simulation of the phenomenon. RIADE tools supported the decisions of the

	administrations appointed to manage the territory. Some of RIADE technologies have been used to support monitoring desertification trend in four of the countries that signed UNCCD convention. This has been done in ESA's DesertWatch , whose information system supports national and local authorities in Greece, Italy, Portugal and Turkey in monitoring and assessing desertification in respective countries and facilitates reporting to the UNCCD.
Website	http://acsspace.acsys.it/en/desertification.php?attiva=desertification.php

Project	**TECSIS**
Title	Diagnostic Technologies And Intelligent Systems for Southern Italy archaeological parks development
Project Acronym	**TECSIS**
Source of funding / Programme	Italian Ministry of Research
Status	Completed
Role of the organisation	Partner
Responsible	Ugo Di Giammatteo
Duration	From Jan 2004 to Dec 2007
Content	The project comprises the following areas of research: • Algorithms for acquisition phase optimisation, i.e. calibration of data quantity and level in respect to users needs. • Rapid calibration methods for high resolution digital cameras used in conjunction with laser scanners. • Pre-processing of heterogeneous data (laser scanner, digital colour photos, LIF, LIBS, etc.) This pre-processing (normalisation, data reduction, data fusion) aims at reducing at minimum human intervention. Furthermore, it creates a set of 3D data that can be easily superimposed one on another and used in an integrated manner from the very first phases of elaboration • Design and realisation of an integrated SW environment with two important functionalities: authoring and immersive visualisation. The particular attention has been paid to the volume rendering techniques. • Algorithms for searching within the archaeological images archives.
Website	http://acsstudio.acsys.it/en/realtime.php?attiva=realtime.php

Section 5 – Priority Topics of Interest

Topics of Interest within the FP7 Calls

FP7		
CALL	**CHALLENGE (WP 2010)**	**TOPIC OF INTEREST**
ICT	1. Pervasive and Trusted Network and Service Infrastructures	
	2. Cognitive systems and robotics	
	3. Alternative Paths to Components and Systems	
	4. Technologies for Digital Content and Languages	Technologies for cataloguing retrieval and long term preservation of image information
	5. ICT for Health, Ageing Well, Inclusion and Governance	
	6. ICT for a Low Carbon Economy	
	7. ICT for manufacturing & factories of the future	
	8. ICT for learning and access to cultural resources	

Topics of Interest within the ICT PSP (CIP) Calls

CIP		
PROGRAMME	**THEME (WP 2010)**	**TOPIC OF INTEREST**
ICT PSP	1. ICT For a Low Carbon Economy and smart mobility	
	2. Digital Libraries	Digital Libraries technologies for Earth Science
	3. ICT for health and inclusion	
	4. Open innovation for future Internet-enabled services in "smart" cities	
	5. ICT for improved public services for citizens and businesses	
	6. Multilingual Web	

Topics of Interest within the AAL Joint Programme

AAL Joint Programme	
APPLICATION AREAS OF THE CALLS	**TOPIC OF INTEREST**
ICT-based solutions for prevention and management of chronic health conditions of elderly People	
ICT-based solutions advancement of social interaction of elderly People	
ICT-based Solutions for Advancement of Older Persons' Independence and Participation in the "Selfserve Society"	